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Factors that Motivate High School Agriculture Teachers to Teach

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Abstract

The purpose of this research was to describe the factors that motivate high school agriculture teachers to teach. The motivation to teach included intrinsic motivations, extrinsic motivations, and altruistic motivations. This was a census study using an online questionnaire that was sent to all (N = 252) high school agriculture teachers in Iowa. The Tailored Design Method with five contacts was used for data collection. The overall response rate was 47% (n = 119). Motivational factors were measured using a four-point Likert-type scale with the following response options: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Confirmatory factor analysis and maximum likelihood factor analysis were used to identify factors underlying individuals' motivation to teach. Means and standard deviations were 3.24 (0.13) for intrinsic factors and 2.55 (0.19) for extrinsic factors, respectively, indicating these factors influenced individuals' motivations to teach. In this study, altruistic factors retained through factor analysis aligned with the intrinsic factors. The findings were consistent with previous studies on intrinsic and extrinsic motivations based on self-determination theory. Even though teachers were drawn to the profession more strongly by intrinsic factors, both intrinsic and extrinsic factors are important in motivating agriculture teachers to teach. The study has implications for the design of induction and mentoring programs and for the administrative support of teachers.

***Keywords*:** agriculture teachers; motivational factors; teacher retention

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Introduction

Recent iterations of *The National Agricultural Education Supply and Demand Study* have shown that several hundred school-based agricultural education teachers leave the profession each year. Less than one third of these departures result from retirement or death. At the same time, the supply of new teachers has been inadequate to meet the needs of new and existing programs. Many positions remain unfilled while others are lost, and programs are closed. (Smith, et al., 2017; Ṡmith, et al., 2018; Smith, et al., 2019).

Previous studies have focused on reasons why individuals choose the teaching profession (Heinz, 2015). Most existing studies have adopted the tripartite constructs of teaching motivations: intrinsic, altruistic, and extrinsic (Kyriacou, et al., 1999; Moran, et al., 2001). These motivations have been widely used in educational research and are important to the teaching profession.

Priority three of the *American Association for Agricultural Education National Research Agenda* focuses on creating an adequate workforce to addresses challenges of the 21st century (Roberts, et al., 2016). Concerning this priority, it is important to retain individuals in the teaching profession. However, no research existed reporting agriculture teachers' motivations to teach in Iowa. Realizing this gap, the researcher examined agriculture teachers' motivations to teach by

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integrating intrinsic, altruistic, and extrinsic motivational constructs into her study.

Literature Review

In the literature, a considerable number of studies reported on teachers' motivations to teach. Studies on teacher motivation attempt to explain the reasons individuals choose teaching and the relationship with teacher retention (Han, et al., 2016; Richardson & Watt, 2005). Various studies have distinguished motivations for teachers to teach into the three categories: intrinsic, extrinsic and altruistic motivations (Kyriacou, et al., 1999; Moran, et al., 2001; Richardson & Watt, 2006). Research has reported the influence of motivations on job satisfaction, increasing student motivation, teaching effectiveness, intention to remain in teaching, and teaching commitment (Ashiedu & Scott-Ladd, 2012; Dinham & Scott, 1997; Han et al., 2016; Neves de Jesus & Lens, 2005; Rice, et al., 2011; Snyder 1979; Taylor, et al., 2014).

In addition, studies on motivations for teachers to remain in teaching in developing and western countries show different trends of teachers selecting teaching as a career. Studies on what influences individuals to teach in developing countries show that extrinsic motivations such as material benefits, job security, monetary rewards, and salaries are the important reasons for individuals to teach (Yong, 1995). Whereas intrinsic and altruistic motives were the important reasons for individuals to teach in western countries (Bastick, 2000; Moran et al. 2001; OECD, 2005). The findings from these studies showed that the motivations influencing individuals to teach, tended to be complex and differ between individuals.

Intrinsic Motivation

Intrinsic motivation to teach involves feelings, desires, and incentives, which stem from an individual's behavior (Wolman, 1989). Numerous studies presented evidence of intrinsic motivation for teachers to teach and its relationship with teachers' satisfaction, commitment, and levels of student motivation (Ashiedu & Scott-Ladd, 2012; Dinham & Scott, 1997; Reilly & Welton, 1980; Roness; 2011). Intrinsic motivation to teach was significant for teachers' longevity and satisfaction in their careers. Taylor et al. (2014) found that teachers intend to stay longer when they feel teaching is a fulfilling career.

According to Gagné and Deci (2005), individuals who are intrinsically motivated gain satisfaction from the activity. The positive intrinsic motivation to teach will influence teachers' satisfaction and commitment to teaching. Research has shown that intrinsic motivation was significant for early career teachers to teach. Hellsten and Prytula (2011) found that teachers in their early careers held intrinsic motivations related to working with young individuals and teaching subject matter in which they were interested. Research has also shown that teachers with high levels of intrinsic motivation influence students' motivations to learn. Students taught by intrinsically motivated teachers had higher enjoyment in learning (Wild, et al., 1997).

Extrinsic Motivation

Extrinsic motivations are also important in persuading individuals to teach. Extrinsic motivation stems from positive or negative external reinforcement (Wolman, 1989). The literature on extrinsic motivations for teachers to teach has established important findings related to career choice, teacher commitment, teacher characteristics such as gender and marital status, and teacher retention (Crutchfield, et al., 2013; Hellsten & Prytula, 2011; Rice, et al., 2011).

According to Brown (1992), external factors are major influences on individuals' decisions to teach. This type of motivation will encourage teachers to stay longer and increase their satisfaction with and commitment to their careers. Extrinsic factors that keep individuals teaching include material benefits, salary, vacations, and other external rewards (Roness, 2011). In the field of agricultural education, studies reported on the relationship between extrinsic motivations and teacher retention, perceptions of working as agriculture teachers, early career challenges, and teachers' work-life balance (Crutchfield, et al., 2013; Delnero & Montgomery, 2001; Whittington, et al., 2006).

Findings from Crutchfield, et al. (2013) showed that the primary reason agricultural

educators remain in the classroom involves having a satisfying work-life balance. In addition, research shows that teachers perceive extrinsic motivations like having motivated students and good facilities as encouragement to continue teaching (Rice, et al., 2011). Quality of students is also an extrinsic factor that motivates or demotivates teachers to teach (Kiziltepe, 2008; Sugino, 2010).

Altruistic Motivation

In addition to intrinsic and extrinsic motivation factors that influence teachers' decisions to teach, altruistic motivations also play an important role in retention. Altruistic motivation focuses on behavior that is performed to benefit another person. The behavior is intentionally or voluntarily performed without expecting any direct rewards (Bar-Tal, 1976; Berkowitz, 1972; Krebs, 1970; Leeds, 1963; Staub, 1978).

Research has shown that altruistic motivation factors like desiring to work with children, wanting to contribute to society, helping students with difficulties, and helping students gain a sense of personal achievement influence teacher candidates to teach (Brookhart & Freeman, 1992; OECD, 2005; Richardson & Watt, 2006; Yu & Bieger, 2013). Reilly and Welton (1980) found that altruistic motivation factors encouraged Kansas vocational agriculture teachers to remain in teaching. Taylor et al. (2014) similarly found that teachers feel rewarded when they make a difference in their students' lives and build good relationships with them.

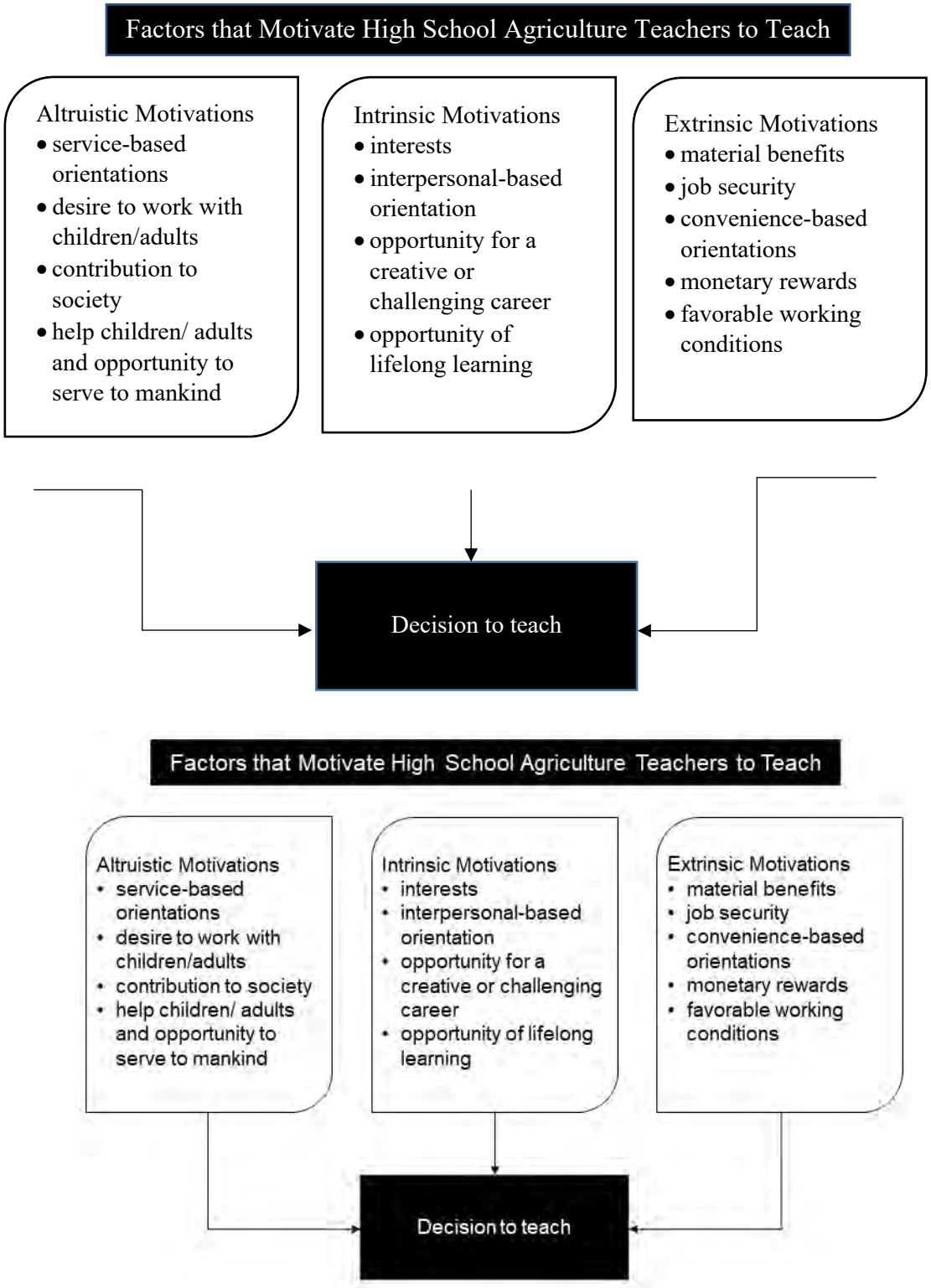
Conceptual Framework

What motivates individuals to work? Super's (1957) treatise *The Psychology of Careers: An Introduction to Vocational Development* offers several factors to consider. Super says that people work to satisfy human relations, work, and livelihood needs. Specific motivational factors include recognition as a person, status, interesting work, satisfying work situations, earnings, and security. The application of these factors varies depending on occupation, situation, and personal characteristics. As described by Super, all of the factors fit within extrinsic motivation except interesting work. These factors are certainly relevant today, but a more contemporary framework was needed to guide our study of factors that motivate individuals to pursue a career in teaching.

The conceptual framework for this study is an adaptation of self-determination theory (SDT). SDT explains motivations based on choices perceived by individuals that lead to action (Ryan & Deci, 2000). SDT has been established to study intrinsic and extrinsic motivations (Deci, & Ryan, 2004; Deci, et al., 1991; Gagné & Deci, 2005; Taylor, et al., 2008). Intrinsic motivation refers to an individual's interests or feelings of enjoyment in performing an activity, on the other hand, extrinsic motivation refers to an individual performing an activity because it leads to a desirable outcome. SDT is useful to study intrinsic and extrinsic motivational concepts in educational settings (Ryan & Deci, 2000). SDT describes the difference between intrinsic and extrinsic goals that influence individuals' behaviors. For example, intrinsic goals are about personal growth that give meaning for individuals, whereas extrinsic goals are about wealth, fame and image.

Based on its prevalence in the literature, the researcher decided that SDT would provide the foundation for studying individuals' motivations to teach. In addition, the researcher believed that an important factor was missing. This factor was altruistic motivation which is likely to be essential for individuals' decisions to teach (Brookhart & Freeman, 1992; Brown, 1992; OECD, 2005; Richardson & Watt, 2006; Yu & Bieger, 2013). Therefore, a conceptual framework that adopts the intrinsic and extrinsic concepts from SDT and additionally incorporates altruistic motivations was developed for this study (see Figure 1).

Figure 1
Conceptual Framework of Factors That Motivate High School Agriculture Teachers to Teach



Purpose and Objectives

The purpose of the study was to describe the factors that motivate high school agriculture teachers to teach. The motivation to teach included intrinsic motivations, extrinsic motivations, and altruistic motivations. The following objectives guided this study:

1. Identify factors underlying individuals' motivations to teach.

2. Describe the factors that motivated high school agriculture teachers to teach.

Methodology

The research design was quantitative and descriptive, using a cross-sectional survey approach (Creswell & Creswell, 2003). A census study of 252 high school agriculture teachers in Iowa was conducted. The list of names and contact information for participants was obtained from the Iowa FFA executive director. The Iowa FFA executive director maintains the most current and accurate list of high school agriculture teachers in the state of Iowa.

Instrument

A questionnaire was used to collect data. The online questionnaire was adapted from studies conducted by Ferrell and Daniel (1993), Rice, et al. (2011), and Muturia (2007). This manuscript was derived from a larger study. Parts 1, 3 and 4 of the questionnaire were relevant to the objectives of this manuscript. Part 1 consisted of 18 Likert-type items measuring intrinsic motivations, 21 Likert-type items measuring extrinsic motivations and 11 Likert-type items measuring altruistic motivations. All items were in the form of a four-point Likert-type scale with 1 = *strongly disagree,* 2 = *disagree,* 3 = *agree, and* 4 = *strongly agree*. Part 3 consisted of seven yes/no questions describing factors that influenced individuals' motivations to teach. Part 4 included eight personal and professional characteristics questions.

Validity

To enhance the internal validity of the study, steps were taken to reduce measurement error. A panel of experts assessed the face, content, and construct validity of the questionnaire. The three-member panel included teacher educators in agriculture with professional expertise related to this study. Panel members were from two land-grant universities. The panel conducted their initial review using a set of guidelines prepared by the researcher. Panel recommendations resulted in deleting irrelevant items, restating items to be clearer and more concise, and adding items needed to ensure more complete and accurate measurements. All panel members agreed that the questionnaire was face, content, and construct valid in the final review

Reliability

After receiving approval from the institutional review board at Iowa State University, a pilot study was conducted to assess instrument reliability. The questionnaire was pilot tested with 10 high school agriculture teachers. Reliability coefficients were $\alpha = .73$ for intrinsic motivation, $\alpha = .90$ for extrinsic motivation and $\alpha = .83$ for altruistic motivation. Post-hoc reliability coefficients were $\alpha = .88$ for intrinsic motivation, $\alpha = .79$ for extrinsic motivation and $\alpha = .85$ for altruistic motivation. The coefficients were acceptable based on guidelines established by McMillan & Schumacher (1984).

Data Collection

Data were collected in September of 2017. Dillman, et al.'s (2009) Tailored Design Method guided the data collection process. A pre-notification email message was sent via Qualtrics to the teachers. After three days, a second email message was sent via Qualtrics. This message encouraged participation in the study and included a URL link to access the questionnaire. After 10 days, a reminder email message was sent via Qualtrics to non-respondents. One week later, the researcher sent another reminder email message via Qualtrics to non-respondents. For the final contact, a postcard that included the URL link to the questionnaire was sent through the U.S. Postal Service. The closing date for the survey was set at one week after the final contact. A final response rate of 47% ($n = 119$) was achieved.

Results showed that 63 of the responding agriculture teachers were female, and 56 were male. The age of the teachers ranged from 21 to 65 years with an average age of 38.15 years and a standard deviation of 13.12. A majority (63%) of the teachers had received bachelor's degrees, and 37% had earned master's degrees for their highest academic attainment. A majority (66%) of the agriculture teachers were married, 30% were single, and a small number (3%) of teachers were

divorced.

Data Analysis

Even though the entire population was surveyed, there was a significant number of nonrespondents. Lindner, et al. (2001) suggested undertaking procedures to control nonresponse error when the response rate is below 85%. The researcher decided to address the issue of nonresponse to determine whether a case could be made that the results were generalizable to the population. The researcher compared early and late respondents using statistical analysis (Ary, et al., 2010). A total of 119 teachers completed the questionnaire. The first half to respond (n = 60) were considered early respondents, and the second half to respond (n = 59) were considered late respondents. Results from the independent samples t-tests showed that early and late respondent groups were not significantly different regarding any of the variables of interest, i.e., intrinsic motivation, extrinsic motivation, and altruistic motivation. The comparisons of early and late respondents provided some evidence that respondents were representative of high school agriculture teachers in Iowa.

The data were analyzed using the Statistical Package for the Social Sciences version 23.0. Frequencies, percentages, means, and standard deviations were used to describe demographic characteristics of the teachers and the factors that motivated them to teach. Confirmatory factor analysis and maximum likelihood factor analysis were used to identify factors underlying individuals' motivation to teach.

Findings

Objective 1: Identify Factors Underlying Individuals' Motivations to Teach

Confirmatory factor analysis was used to determine whether the data supported three factors underlying individuals' motivation to teach as depicted in the study's conceptual framework. Several steps were involved in the analysis and all assumptions were met. The pooled analysis method was used to increase the degrees of freedom for a combination of intrinsic, extrinsic and altruistic motivations. Root mean square error of approximation (RMSEA), goodness fit index (GFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and nonnormed fit index (NFI) were used as the fitness indexes.

Table 1 reports the fitness indexes for the three models. Table 2 displays acceptable levels for the fitness indexes along with supporting literature citations. The initial model did not fit the data and needed to be modified. The second model was the modification to the initial model. Regarding the second model, the value of RMSEA was reduced while the GFI, CFI, TLI, and NFI indexes increased. While an improvement over the initial model, the second model still did not fit the data. The last model was a final model revision. Seven items with lower factor loadings were deleted which improved the model fit. The last model did not meet acceptable threshold levels for four out of five fitness indexes but did show an improvement where the RMSEA value was reduced, and the GFI, CFI, TLI, and NFI indexes increased.

Table 1
Fitness Indexes for the Three Models

Fit Indexes	First Model (Measurement Model)	Second Model (Modification Indices)	Final Model (Model Revision)
RMSEA	0.09	0.08	0.07
GFI	0.58	0.62	0.66
CFI	0.55	0.65	0.71
TLI	0.53	0.64	0.69
NFI	0.37	0.44	0.49

Table 2
Fitness Indexes and Their Level of Acceptance Thresholds

	Index	Level of Acceptance Threshold	Literature
Absolute Fit	RMSEA	RMSEA < 0.08	Browne & Cudeck (1993)
	GFI	GFI > 0.90	Brown (2006) Jöreskog & Sörbom (1984)
Incremental Fit	CFI	CFI > 0.90	Bentler (1990)
	TLI	TLI > 0.90	Bentler & Bonett (1980)
	NFI	NFI > 0.90	Brown (2006) Bollen (1989)

Results from the confirmatory factor analysis provided evidence that the final model did not fit the data and did not confirm the conceptual framework. Therefore, an exploratory factor analysis was used to determine the factors underlying individuals' motivations to teach. A factor analysis is useful to determine the latent factor structure for a group of measured variables. The maximum likelihood method was used to estimate factor loadings (O'Rourke et al., 2005).

Maximum likelihood factor analysis was applied to all of the motivational items (50 statements). Eigenvalues and a scree plot were used to determine the number of factors needed. Factors with an eigenvalue equal to or greater than one were retained (Raven, 1994). No rotation was needed for the first maximum likelihood because the researcher was solely interested in identifying which variables loaded better for the latent factors. Statements with factor loadings equal to or greater than 0.40 were retained from the first maximum likelihood factor analysis (Raven, 1994).

In the second step, maximum likelihood factor analysis was conducted to extract three factors from the data. Oblique/Oblimin rotation was used to enable the factors to be correlated. The results from the pattern matrix that holds the factor loadings were reported. Of the 21 statements, 12 were loaded on the first factor, and four were loaded on the second factor. Only two statements were loaded on the last factor. These statements were deleted because at least three were needed to form a factor. Thus, only Factors 1 and 2 are reported here. Cronbach's alpha was used to calculate reliability. The coefficients were 0.84 for Factor 1 and 0.61 for Factor 2.

Table 3 presents the rotated factor loadings for the motivational factors. The first factor was labeled intrinsic factors, and the second factor was labeled extrinsic factors. Factor analysis with the oblique rotation showed that the first factor accounted for 21% of the variance, and the second factor accounted for 4% of the variance (see Table 4). The factor correlation matrix displayed the inter-correlations between the rotated factors in Table 5. Results show that a low positive correlation existed between Factor 1 and Factor 2 (Davis, 1971).

Table 3
Rotated Factor Loadings for Individuals' Motivations to Teach

Abbreviated Item	Factor Loadings
Factor 1 = Intrinsic factors	
Felt teaching would be enjoyable	0.71
Fits well with personality	0.66
Enjoy working with children	0.61
Chance to serve as a positive role model for children	0.60
Creative profession	0.59
Personal calling to teach	0.57
Teaching is a challenging occupation	0.54
Opportunity for career advancement	0.48
Opportunity to help students gain a sense of self-worth	0.48
Chance to impact society	0.45
Wanted to work with young people	0.44
Have highly motivated students	0.44
Factor Two = Extrinsic factors	
Have nice benefits associated with their jobs	0.53
Teachers have flexibility in their schedules	0.50
Have a pleasant working environment	0.44
Chance to make a good salary	0.40

Table 4
Percent of Variance Explained by Intrinsic and Extrinsic Factors

Factors	%	Cumulative %
Intrinsic	21.12	21.12
Extrinsic	4.32	25.44

Table 5
Intercorrelations of Rotated Factors

Variables	1	2
1. Intrinsic	-	0.24
2. Extrinsic	0.24	-

Note. The extraction method was Maximum Likelihood, and the rotation method was Oblimin with Kaiser.

Objective 2: Describe The Factors That Motivated High School Agriculture Teachers To Teach

A four-point Likert-type scale with response options ranging from *strongly disagree* (1) *to strongly agree* (4) was used to measure high school agriculture teachers' motivations to teach. The decision rule for interpreting the means is shown in Table 6.

Table 6
Decision Rule to Interpret the Mean Scores

Likert – type categories	Mean Score	Interpretation of the statement
1	1.00 – 1.50	Strongly Disagree
2	1.51 – 2.50	Disagree
3	2.51 – 3.50	Agree
4	3.51 – 4.00	Strongly Agree

Table 7 presents the means and standard deviations for high school agriculture teachers' motivations to teach. The overall mean score was 3.24 with a standard deviation of 0.13 for intrinsic motivational factors. Agriculture teachers agreed that intrinsic motivation factors influenced them to teach. For the individual factors within the intrinsic category, agriculture teachers provided the highest mean score for the statement "chance to serve as a positive role model for children*"* (*M* = 3.43*, SD* = 0.53). That statement was followed by "teaching is a challenging occupation*"* (*M* = 3.*41, SD* = 0.62) and "felt teaching would be enjoyable*"* (*M* = 3.*34, SD* = 0.56). Agriculture teachers rated "have highly motivated students*"* (*M* = 2.95*, SD* = 0.74) the lowest.

The overall mean score was 2.55 with a standard deviation of 0.19 for extrinsic motivational factors. Agriculture teachers agreed that extrinsic motivational factors influenced them to teach. For the individual factors within the extrinsic category, agriculture teachers provided the highest mean score for the statement "have nice benefits associated with their jobs*" (M* = 2.80*, SD* = 0.63). That statement was followed by *"*have a pleasant working environment*"* (*M* = 2.66*, SD* = 0.59) and *"*teachers have flexibility in their schedules*"* (*M* = 2.38*, SD* = 0.70). Agriculture teachers indicated the lowest mean score for the statement "chance to make a good salary*"* (*M* = 2.34*, SD* = 0.81).

Table 7
Means and Standard Deviations for Factors that Motivated High School Agriculture Teachers to Teach

Factors and Abbreviated Items	*M*	*SD*
Factor 1 = Intrinsic factors		
Felt teaching would be enjoyable	3.34	0.56
Fits well with personality	3.24	0.57
Enjoy working with children	3.20	0.48
Chance to serve as a positive role model for children	3.43	0.53
Creative profession	3.17	0.51
Personal calling to teach	3.11	0.71
Teaching is a challenging occupation	3.41	0.62
Opportunity for career advancement	3.26	0.51
Opportunity to help students gain a sense of self-worth	3.33	0.52
Chance to impact society	3.24	0.52
Wanted to work with young people	3.14	0.51
Have highly motivated students	2.95	0.74
Composite Mean	3.24	0.13
Factor Two = Extrinsic factors		
Have nice benefits associated with their jobs	2.80	0.63
Teachers have flexibility in their schedules	2.38	0.70
Have a pleasant working environment	2.66	0.59
Chance to make a good salary	2.34	0.81
Composite Mean	2.55	0.19

Note. Scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree.

Agriculture teachers were asked additional yes/no questions about the factors that influenced their decisions to teach agricultural education. Table 8 reports the frequency and percentages of these factors. Most (*f = 113,* 97%*)* of the teachers indicated that "personal reasons*"* influenced them to teach agricultural education. Eighty-seven percent (*f* = 104) of the agriculture teachers affirmed that *"*desire to teach*"* and *"*ability to teach*"* were influential factors for them to teach agricultural education. More than three-fourths (*f* = 90, 76%) of teachers indicated that *"*encouragement from others*"* was a factor that influenced them to teach agricultural education. Regarding job security, 56% (*f* = 67*)* of the teachers indicated that this factor influenced them to teach agricultural education.

Most (*f = 88,* 74%) of the teachers indicated that *"*pay*"* was not an influential factor in teaching agricultural education. In addition, a majority (*f* = 81, 68%) of the teachers affirmed that "family influence" was not a factor that led them to teach agricultural education.

Table 8
Frequencies and Percentages of Factors that Influenced High School Agriculture Teachers to Teach Agricultural Education

Factors		*f*	%
Personal Reasons	Yes	113	97
	No	4	3
Desire to teach	Yes	104	87
	No	15	13
Ability to teach	Yes	104	87
	No	15	13
Encouragement from others	Yes	90	76
	No	29	24
Job security	Yes	67	56
	No	52	44
Family influence	Yes	38	32
	No	81	68
Pay	Yes	31	26
	No	88	74

Conclusions

The purpose of the study was to describe the factors that motivate high school agriculture teachers to teach. Objective one sought to identify factors underlying individuals' motivations to teach. Results of the confirmatory factor analysis indicated that the final model did not fit the data or achieve acceptable fit indexes. Results from the maximum likelihood factor analysis showed that several extrinsic items coalesced, whereas several altruistic items aligned with intrinsic items. It was concluded that only two factors underlie Iowa high school agriculture teacher motivations to teach: (1) intrinsic factors and (2) extrinsic factors. This finding supported SDT as related to the study of intrinsic and extrinsic motivations. It was also concluded that intrinsic and extrinsic factors most influenced agriculture teachers' motivation to teach, whereas, as measured in this study, altruistic factors did not.

The second objective of the study sought to describe the factors that motivated high school agriculture teachers to teach. Agriculture teachers were most likely to indicate that intrinsic factors such as "chance to serve as a positive role model for children," "teaching is a challenging occupation," and "felt teaching would be enjoyable" were primary motivations. The results confirmed Hellsten's and Prytula's (2011) study indicating that intrinsic motivations influence individuals to teach the most. Teachers indicated wanting to teach because of the challenge. To deal with the challenge, teachers need supportive school administrators who can guide them in their roles as teachers (Billingsley, 1993). In addition, the teachers perceived that teaching was an enjoyable profession. Similarly, Reilly and Welton (1980) found that agriculture teachers received a lot of enjoyment from teaching. Teachers in this study also indicated that "personal reasons," "desire to teach," and "ability to teach" were factors that influenced their decision to teach agricultural education. It was concluded that significant numbers of teachers in Iowa were motivated to teach by intrinsic factors.

When taken together, teachers agreed that extrinsic factors motivated them to teach.

However, the level of agreement was substantially lower than the level achieved on intrinsic factors. In addition, teachers did not agree that two extrinsic factors motivated them to teach. These included pay and a flexible schedule. Our findings are consistent with Herzberg, et al.'s (1959) theory of motivation which includes motivator and hygiene factors. Lindner (1998) equated motivators with intrinsic factors and hygienes with extrinsic factors. Cano and Miller (1992) used Herzberg et al.'s theory to study job satisfaction of agricultural education teachers. They aligned job satisfier factors with motivators and job dissatisfiers with hygienes. Consequently, we should expect teachers to be drawn to the profession more strongly by intrinsic factors. However, Lindner reminds us "that to the degree that hygienes are absent from a job, dissatisfaction will occur. When present, hygienes prevent dissatisfaction, but do not lead to satisfaction" (para. 19). Therefore, we conclude that both intrinsic and extrinsic factors are important in motivating agriculture teachers to teach.

Recommendations

Practice

New teacher induction and mentoring programs and programs for mid-career teachers such as the National Association of Agricultural Educator's XLR8 should consider factors that motivate teachers to teach. It is recommended that such programs seek to capitalize on teachers' intrinsic motivations. Encouragement from others to support teachers in their own personal reasons, desires, and abilities for teaching may be important in helping them through challenges commonly faced during different career stages.

Local administrators should also recognize and support teachers' intrinsic motivations to teach. However, administrators are also able to positively impact important extrinsic factors such as a pleasant working environment, benefits, and pay. As an example, extended contracts could be considered extrinsic motivation to teach. Such contracts are particularly important to agriculture teachers who are trying to successfully implement the three-component agricultural education model. Frustrating this effort may ultimately impact intrinsic motivations related to working with students and feeling enjoyment in teaching.

Persons who recruit individuals into the profession of teaching agriculture are encouraged to consider potential implications of this study to their work. Most prospective teachers will respond to encouragement from others, particularly those from outside of their immediate family. In addition, recruitment messages should be individualized and appeal to the desires and needs that can be met and the abilities that can be applied through teaching agriculture. Compelling messages should emphasize the opportunity for agriculture teachers to positively impact the lives of other people.

Further Research

Results from this study show that intrinsic and extrinsic motivations are useful to measure agriculture teachers' motivations to teach. Additional research using qualitative methods may help to further explain and provide a better understanding of agriculture teachers' motivations to teach.

More attempts at model building are needed. It is recommended that this study be replicated in other states. Would a three-factor solution (i.e. altruistic, intrinsic, extrinsic) emerge in other settings, or would altruistic motivations coalesce with intrinsic motivations as they did in this study?

Further research is needed to understand the intersection of intrinsic and altruistic motivation among agriculture teachers. The nature of the teaching profession may naturally attract individuals who want to help others and contribute to something greater than themselves. Agriculture teachers may internalize teaching's altruistic purposes and enjoy pursuing them. As a result, altruistic motivations may be inseparable from intrinsic motivations for agriculture teachers.

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